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The function of the pale egg colour of the Jackdaw

by David Holyoak

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The Jackdaw *Corvus monedula* is the only member of the genus *Corvus* to nest in holes (other than its close relative *Corvus dauricus*), and its eggs are paler than those of the other members of the genus. There are many other examples of a pale or white egg colour being associated with hole-nesting, and Lack (1958) has shown that members of the Turdinae have paler eggs even in partly enclosed nest sites than when nesting in the open. It has been suggested that the eggs of hole-nesting birds are paler than those of related species nesting in open sites either to enable the birds to see the eggs more clearly in a dark hole, or because there is no need for marked eggs in holes, so that the markings have been lost in the course of evolution.

While making routine observations on a number of Jackdaw nests near Tring, Hertfordshire in May and June 1967 I noticed that after heavy rain many of the eggs became badly discoloured with mud from the birds' feet, making it difficult to count them without removing them from the nest-hole. In five clutches where the eggs were noted as being heavily soiled (22 eggs) three eggs were found holed and at least nine disappeared from the nest before they were due to hatch—an unusually high rate of loss. In June, 1968, I tested whether the colour of the eggs affected the rate of loss by painting ten clutches with black pen ink (47 eggs) and leaving another nine clutches (41 eggs) unmarked. Of these, 12 of the black eggs were found holed by the birds' feet, and 28 disappeared (presumably removed from the nest after being damaged) before hatching was due. Five young were seen, and two eggs or young disappeared around hatching time. The eggs that disappeared went one at a time from the clutch in most cases. Of the controls, none were found holed, one clutch of four eggs disappeared before hatching was possible, and eight eggs or small young disappeared at around hatching time.

The difference between the success rate of the blackened eggs and the normal, pale-coloured eggs is statistically significant ($P<.001$), and suggests that more of the darkened eggs were being lost because of accidental breakages, so that the normal pale egg colour would appear to be of selective advantage because it enables the birds to see the eggs more clearly in the half-light of the nest hole. It would also suggest that sight plays an important part either in nest location within the hole, or at least in the Jackdaw, in the movements associated with egg-turning or settling onto the eggs.

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